UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,595	09/05/2003	Paul R. Arntson	BING-1-1038	7958

25315 7590 10/05/2005

BLACK LOWE & GRAHAM, PLLC
701 FIFTH AVENUE
SUITE 4800
SEATTLE, WA 98104

EXAMINER	
SCHINDLER, DAVID M	
ART UNIT	PAPER NUMBER
2862	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/656,595	ARNTSON, PAUL R.	
	Examiner	Art Unit	
	David Schindler	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 September 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/18/05,12/23/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because 1) The text in Figures 1-3, and 5 is illegible, 2) It is unclear in the drawings what is actually encompassed by the various numbers used. This applies to Figures 1-4. For example, the difference between (116) and (117) in Figure 1 is not clear. Another example is reference numbers (112) and (110) in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Information Disclosure Statement

2. It is noted to applicant that applicant states "We hereby certify that each of the references set forth on the attached form PTO-1449 was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement" on the IDS submitted on 2/15/2005.

However, § 1.97 (e) states "That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement." Note the use of the above phrase "first cited." Therefore, the Examiner respectfully requests that applicant recertify, if the above phrase is applicable and proper, the above § 1.97 (e) statement with regard to the IDS received 2/18/2005.

It is further noted that the reference 34 from the IDS submitted on 12/23/2003 is either missing, or the number listed on the IDS is incorrect. Reference 34 is stated to be DE 508647, however a reference with number DE 508347 was submitted.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. **A Note To Applicant:** It is important to note a few points about the application before addressing any claim rejections. Specifically, it is important to note the various

shapes that applicant has drawn around the flux lines in the various drawings and as such has designated these shapes as a "shaped magnetic field portion." The Examiner would like to point out that magnets and electromagnets inherently create flux lines similar to those shown in applicant's Figures 1-3. A reference has been provided in the Conclusion section demonstrating this. Furthermore, the Examiner would like to note that these flux lines are inherently shaped magnetic field portions, given the applicant's specification and drawings, as any number of shapes of various sizes could be drawn to encompass all of or at least part of the flux lines. Note for example that the spherical shape that applicant uses in Figure 1 could have been used in Figure 2. The size of the sphere used might change from that of Figure 1, but a sphere could have been used nevertheless. Also, the Examiner would like to point out that the above also applies to a magnetic flux that passes through a pole piece, flux guide, or any other magnetic material. The purpose of such material is, at least in part, to guide the flux lines in a desired direction. See Figure 8 and Column 7, Lines 57-64 of 6,137,281 to Phillips et al., a reference supplied by applicant. In the rejections that follow, the Examiner is interpreting the mere fact that a magnet or electromagnet is used to generate magnetic flux in the presence of a magnetic material, and in which the flux is generated toward a detector as sufficient to meet the limitations of any claims referring to a shaped magnetic field portion, or to any claims referring to a specific shape of the magnetic flux for the above reasons. An art rejection follows.

Claim Objections

5. Claims 1-53 are objected to because of the following informalities:

As to Claims 1-53,

It is noted to applicant that many of the above claims use the phrase "adapted to" which does not positively recite the claimed limitations.

As to Claim 16,

The phrase "the magnetic field sensor is further adapted to determine the desired location" on lines 1-2 is unclear as it is not clear if the magnetic field sensor is actually determining the desired location, or is outputting a signal that is used to determine the desired location.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 6-19, 21-23, 25-37, 40-42, and 45-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Sarh et al. (herein referred to as "Sarh") (2002/0050043).

As to Claims 1 and 21,

Sarh discloses a manufacturing tool (24a / drill) adapted to perform a manufacturing operation on a work piece (Page 2, Paragraph [0025] / lines 1-3), and a sensing system adapted to be operatively engaged with the workpiece, wherein the

sensing system includes a first portion including a magnet having a magnetic field emanating therefrom ((Figure 5A) and (Page 3, Paragraph [0028] / note electromagnet) and at least one field-directing member ((30) / note that this is a magnetic clamping-block) adapted to provide a shaped magnetic field portion of the magnetic field (Page 3, Paragraph [0030]), the shaped magnetic field portion at least partially extending through the workpiece and outwardly beyond a second surface of the workpiece ((Figure 5A) / note that the flux must extend through the workpiece); and a second portion including a magnetic field sensor (32) moveable through at least a portion of the shaped magnetic field portion extending outwardly beyond the second surface (Page 3, Paragraph [0029] and (0031]), the magnetic field sensor being adapted to sense a characteristic of the shaped magnetic field portion indicative of the desired position for the manufacturing operation (Page 3, Paragraph [0029]).

It is noted to applicant that a magnetic component such as (30) will inherently guide the magnetic flux generated by the electromagnet and thus will act as a field-directing member. It is further noted to applicant that the electromagnet must generate lines of flux toward the detector (32). This is evidenced by Page 3, Paragraph [0028], Lines 16-26. This reasoning applies to all claim rejections.

As to Claim 2,

Sarh discloses the magnet includes a permanent magnet (Page 3, Paragraph [0028] / note electromagnet).

As to Claims 3 and 23,

Sarh discloses the magnet includes an electromagnet (Page 3, Paragraph [0028] / note electromagnet).

As to Claim 4,

Sarh discloses the first portion further includes a source coupled to the electromagnet (Figure 5A).

It is noted to applicant that in order for an electromagnet to function, current must flow through the coil, and therefore Sarh must inherently include a source coupled to the electromagnet.

As to Claims 6 and 25,

Sarh discloses the at least one field-directing member includes an axisymmetraically-shaped field-directing portion (a magnetic clamping block (30) (Figure 5A)).

As to Claim 7,

Sarh discloses the at least one field-directing member includes a frustum-shaped field-directing portion (Figure 5A / note (31)).

As to Claims 8 and 26,

Sarh discloses the at least one field-directing member includes an outer portion having a first magnetic permeability and an inner portion having a second magnetic permeability (Figure 5A / note (31)).

Note that the air filling the receptacle (31) has a permeability that is different than the permeability of the magnetic clamping block which is made out of, for example, steel (Page 3, Paragraph [0027]).

As to Claim 9,

Sarh discloses the inner portion includes a hollow cavity (Figure 5A / note (31)).

As to Claim 10,

Sarh discloses the outer portion includes a first material (for example, steel (Page 3, Paragraph [0027]) and the inner portion includes a second material (Figure 5A).

As to Claims 11 and 27,

Sarh discloses the shaped magnetic field portion includes an approximately spherical portion ((Figure 5A) and (Page 3, Paragraph [0030])).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claims 12 and 28,

Sarh discloses the shaped magnetic field portion includes an approximately axisymmetrical portion ((Figure 5A) and (Page 3, Paragraph [0030])).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 13,

Sarh discloses the magnetic field sensor includes a linear Hall effect sensor (Page 3, Paragraph [0029]).

As to Claim 14,

Sarh discloses the magnetic field sensor is further adapted to transmit signals based on the sensed characteristics of the shaped magnetic field portion (Page 3, Paragraph [0029]).

As to Claim 15,

Sarh discloses the second portion includes a data analyzer (processor (35)), the magnetic field sensor being adapted to transmit signals to the data analyzer (Page 3, Paragraph [0032]).

As to Claim 16,

Sarh discloses the magnetic field sensor generates signals that are received by a processor which processes the signals to determine directional information (Page 3, Paragraph [0032]).

As to Claim 17,

Sarh discloses the first portion includes a position control assembly (12) operatively coupled to the field-directing member (30) and the magnetic field sensor (32) ((Figure 5A) and (Pages 2 and 3, Paragraph [0026])).

Note that the position control assembly is magnetically coupled to the field-directing member and the magnet field sensor through the electromagnet.

Note the Powered Drive System of Figure 4 with regard to the position control assembly. These notes apply to all claim rejections.

As to Claim 18,

Sarh discloses the first portion includes a position control assembly (12) operatively coupled to the workpiece (Figure 5A) and adapted to controllably position the field-directing member and the magnetic field sensor ((Figure 5A) and (Pages 2-3, Paragraph [0026])).

As to Claim 19,

Sarh discloses the position control assembly (12) includes a track assembly (16) adapted to be operatively coupled to the workpiece (Figure 5), and a carriage assembly (22) operatively coupled to the track assembly and to the field-directing member and the magnetic field sensor (Figures 3, 5, and 5A).

Note that the carriage assembly is coupled to the field-directing member and the magnetic field sensor as it is coupled to the position control assembly which is magnetically coupled to the field-directing member and the magnetic field sensor through the electromagnet.

As to Claim 22,

Sarh discloses the manufacturing tool includes a drilling device (24a) ((Figures 5 and 5A) and (Page 2, Paragraph [0025])).

As to Claim 29,

Sarh discloses a position control assembly (12) operatively coupled to the sensing system and the manufacturing tool (Figures 4, 5, and 5A).

Note the drill and electromagnet in Figures 4 and 5A.

As to Claim 30,

Sarh discloses the position control assembly is operatively coupled to the field-directing member and the magnetic field sensor of the sensing system (Figure 5A).

Note that the position control assembly is magnetically coupled to both the field-directing member and the magnetic field sensor through the electromagnet.

As to Claim 31,

Sarh discloses the position control assembly is operatively coupleable to the workpiece (Figure 5).

As to Claim 32,

Sarh discloses the position control assembly (12) includes a track assembly (16) adapted to be operatively coupled to the workpiece (Figure 5), and a carriage assembly (22) operatively coupled to the track assembly and to the field-directing member and the magnetic field sensor (Figures 3, 5, and 5A).

Note that the carriage assembly is coupled to the field-directing member and the magnetic field sensor as it is coupled to the position control assembly which is magnetically coupled to the field-directing member and the magnetic field sensor through the electromagnet.

As to Claim 33,

Sarh discloses the position control assembly further includes a controller (48) operatively coupled to the carriage assembly and adapted to transmit a control signal to the carriage assembly to controllably position the carriage assembly with respect to the workpiece ((Figures 3, 4, 5, and 5A) and (Page 2, Paragraph [0025]) and (Page 4, Paragraphs [0037] and [0038])).

As to Claim 34,

Sarh discloses the position control assembly is operatively coupled to the field-directing member and the magnetic field sensor of the sensing system (Figure 5A).

Note that the position control assembly is magnetically coupled to both the field-directing member and the magnetic field sensor through the electromagnet.

As to Claim 35,

Sarh discloses providing a shaped magnetic field portion originating from a first side of the workpiece and extending through the workpiece and outwardly from a second side of the workpiece (Figures 5 and 5A / also see note below); traversing a sensor (32) along a first path at least partially through the shaped magnetic field portion extending outwardly from the second side of the workpiece ((Figure 5A) and (Page 3, Paragraph [0031])); sensing a characteristic of the shaped magnetic field portion (Page 3, Paragraph [0029]); and determining a desired location for performing the manufacturing operation on the workpiece based on the sensed characteristic of the shaped magnetic field portion ((Page 1, Paragraphs [0005] and [0006]) and (Page 3, Paragraphs [0029] and [0032])).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 36,

Sarh discloses providing a shaped magnetic field portion includes emanating a plurality of magnetic field lines from a magnet ((Page 3, Paragraph [0030] / note electromagnet), and shaping at least a portion of the plurality of magnetic field lines using a field-directing member (30) (Figure 5A).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 37

Sarh discloses emanating a plurality of magnetic field lines from a magnet includes emanating a plurality of magnetic field lines from an electromagnet (Page 3, Paragraph [0028]).

Note that it is inherent for an electromagnet to emanate a plurality of magnetic field lines. See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 40,

Sarh discloses shaping at least a portion of the plurality of magnetic field lines includes shaping at least a portion of the plurality of magnetic field lines using an axisymmetrically-shaped portion of the field-directing member (30) ((Figure 5A) and (Page 3, Paragraph [0028])).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 41,

Sarh discloses shaping at least a portion of the plurality of magnetic field lines includes shaping at least a portion of the plurality of magnetic field lines using an inner portion of the field-directing member having a first magnetic permeability, and an outer portion of the field-directing member having a second magnetic permeability (Figure 5A / note (31)).

Note that the air filling the receptacle (31) has a permeability that is different than the permeability of the magnetic clamping block which is made out of, for example, steel (Page 3, Paragraph [0027]).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 42,

Sarh discloses traversing a sensor along a first path at least partially through the shaped magnetic field portion includes manually traversing the sensor along the first path ((Figures 2, 5, and 5A) and (Page 3, Paragraph [0031])).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 45,

Sarh discloses traversing a sensor along a first path at least partially through the shaped magnetic field portion includes traversing the sensor along the first path at a constant distance from the workpiece ((Figures 2, 5, and 5A) and (Page 3, Paragraph [0031]) and (Figures 8A, 8B, and 8C) and (Page 1, Paragraph [0005], Lines 9-15) and (Page 3, Paragraph [0031])).

Note the constant position of the detectors in Figures 8A, 8B, and 8C.

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 46,

Sarh discloses traversing a sensor along a first path at least partially through the shaped magnetic field portion includes traversing the sensor through an approximately-spherical portion of the shaped magnetic field portion ((Figures 2, 5, and 5A) and (Page 3, Paragraph [0029])).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 47,

Sarh discloses traversing a sensor along a first path at least partially through the shaped magnetic field portion includes traversing the sensor through an approximately-axisymmetrical portion of the shaped magnetic field portion ((Figures 2, 5, 5A, and 8A-8C) and (Page 3, Paragraph [0029])).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 48,

Sarh discloses sensing a characteristic of the shaped magnetic field portion includes, sensing a characteristic simultaneously with traversing the sensor along the first path at least partially through the shaped magnetic field portion (Page 3, Paragraph [0029] / note The Hall effect sensors detect small variations in the flux density of a magnetic field in which they are placed).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 49,

Sarh discloses determining a desired location for performing the manufacturing operation on the workpiece includes determining a center of an approximately spherical portion of the shaped magnetic field ((Figures 8A-8C) and (Page 3, Paragraphs [0030] and [0031])).

It is noted that the detector is used to determine a center of the electromagnet. Given Figures 8A-8C, and applicants own Figures 1-3, the center of the electromagnetic would correspond to an the center of the spherical portion of the shaped magnetic field. See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 50,

Sarh discloses determining a desired location for performing the manufacturing operation on the workpiece includes determining a center of an approximately axisymmetrical portion of the shaped magnetic field ((Figures 8A-8C) and (Page 3, Paragraphs [0030] and [0031])).

It is noted that the detector is used to determine a center of the electromagnet. Given Figures 8A-8C, and applicants own Figures 1-3, the center of the electromagnetic

would correspond an axisymmetrical portion of the shaped magnetic field. See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 51,

Sarh discloses determining a desired location for performing the manufacturing operation on the workpiece includes determining a location on the second side of the workpiece along a longitudinal axis of the shaped magnetic field ((Figures 3, 5, 5A, and 8A-8C) and (Page 3, Paragraph [0032])).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 52,

Sarh discloses performing the manufacturing operation at the desired location on the workpiece ((Figures 3, 5, 5A, 8A-8C) and (Page 1, Paragraph 0005]).

As to Claim 53,

Sarh discloses performing a drilling operation at the desired location on the workpiece ((Figures 3, 5, 5A, 8A-8C) and (Page 1, Paragraph 0005]).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 5, 24, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarh et al. (herein referred to as "Sarh") (2002/0050043).

As to Claims 5 and 24,

Sarh discloses as explained above.

Sarh discloses a magnetic clamping block (30) (Figure 5A).

Sarh does not explicitly disclose the at least one field-directing member includes a conically-shaped field-directing portion.

However, it would have been obvious to a person of ordinary skill in the art to change the shape of the magnetic clamping block into any other shape including a conically-shaped field-directing portion in order to guide and concentrate the flux generated by the electromagnet. See MPEP 2144.04.

As to Claim 39,

Sarh discloses a magnetic clamping block (30) (Figure 5A), and shaping at least a portion of the plurality of magnetic field lines using a magnetic clamping block as a field-directing member ((Page 3, Paragraph [0028], Lines 16-26) and (Figure 5A)). (See note below).

Sarh does not explicitly disclose using a conically-shaped portion as the field-directing member.

However, it would have been obvious to a person of ordinary skill in the art to change the shape of the magnetic clamping block into any other shape including a conically-shaped portion in order to guide and concentrate the flux generated by the electromagnet. See MPEP 2144.04.

See paragraph 4 of this Office Action as well as the rejection of claim 1.

11. Claims 20 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over over Sarh et al. (herein referred to as "Sarh") (2002/0050043) in view of Wester et al. (herein referred to as "Wester") (4,388,890).

As to Claim 20,

Sarh discloses as explained above.

Sarh discloses a controller (48) operatively coupled to the carriage assembly and adapted to transmit a control signal to the carriage assembly to controllably position the position control assembly ((12) / automated machine) ((Figure 4) and (Page 4, Paragraph [0038])).

Sarh does not disclose that one of the field-directing member and the magnetic field sensor is attached to the position control assembly to be moved along with it.

Wester discloses a first magnetic body (9a) and a second magnetic body (9b), each of them on opposite sides of a wall element (7), wherein the second magnetic body is movable along its side (Column 1, Lines 65-68).

It would have been obvious to a person of ordinary skill in the art to modify Sarh to include the field-directing member is attached to the position control assembly to be

moved along with it given the above disclosure and teaching of Wester in order to rapidly and exactly locate the first magnetic body through the wall element (Column 2, Lines 7-13).

As to Claim 38,

Sarh discloses shaping at least a portion of the plurality of magnetic field lines includes shaping at least a portion of the plurality of magnetic field lines.

Sarh does not disclose shaping the plurality of magnetic field lines using a supplemental field-directing member from the second side of the workpiece.

Wester discloses shaping the plurality of magnetic field lines using a supplemental field-directing member (9a) from the second side of the workpiece ((Figure 2) and (Column 2, Lines 1-10)).

It would have been obvious to a person of ordinary skill in the art to modify Sarh to include shaping at least a portion of the plurality of magnetic field lines includes shaping at least a portion of the plurality of magnetic field lines given the above disclosure and teaching of Wester in order to rapidly and exactly locate a magnetic body (Column 2, Lines 10-12).

Note the opposite poles of the magnetic bodies are directed toward each other.

See paragraph 4 of this Office Action as well as the rejection of claim 1.

12. Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarh et al. (herein referred to as "Sarh") (2002/0050043) in view of Wheetley et al. (herein referred to as "Wheetley") (5,468,099).

As to Claim 43,

Sarh discloses as explained above.

Sarh discloses traversing a sensor (32) along a first path at least partially through the shaped magnetic field portion ((Figures 3, 5, and 5A) and (Page 3, Paragraph [0028]) and (see note below)).

Sarh does not disclose traversing the sensor along the first path using a position control assembly.

Wheetley discloses traversing the sensor (130) along the first path using a position control assembly ((Figure 2) and (Column 3, Lines 42-60)).

It would have been obvious to a person of ordinary skill in the art to modify Sarh to include traversing the sensor along the first path using a position control assembly given the above disclosure and teaching of Wheetley in order to monitor position (Column 4, Lines 7-9).

See paragraph 4 of this Office Action as well as the rejection of claim 1.

As to Claim 44,

Sarh discloses traversing a sensor (32) along a first path at least partially through the shaped magnetic field portion ((Figures 3, 5, and 5A) and (Page 3, Paragraph [0028]) and (see note below)).

Sarh does not disclose traversing the sensor along the first path using a position control assembly operatively coupled to the workpiece.

Wheetley discloses traversing the sensor (130) along the first path using a position control assembly operatively coupled to the workpiece ((Figure 2) and (Column 3, Lines 42-67)).

It would have been obvious to a person of ordinary skill in the art to modify Sarh to include traversing the sensor along the first path using a position control assembly operatively coupled to the workpiece given the above disclosure and teaching of Wheetley in order to monitor position (Column 4, Lines 7-9).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. No. 4,497,375 to Mucheyer et al. which discloses the field lines of a magnet and electromagnet (see Figure 2 and Column 5, Lines 6-43).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Schindler
Examiner
Art Unit 2862

DS

EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800